AMENDMENTS TO THE CLAIMS

1-20 (Cancelled)

21. (New) A system comprising:

a network adapter for coupling to a network medium and for receiving a plurality of data packets via the network medium; and

memory for storing an application that operates according to a multi-layer protocol stack, the memory including a target buffer for a high layer of the multi-layer protocol stack and one or more intermediate buffers for lower layers of the multi-layer protocol stack,

wherein the network adapter (i) reads each of the plurality of data packets to determine whether each respective data packet is within a flow specification that identifies a block of data for the application, (ii) separates a payload from each respective data packet within the flow specification, and (iii) transfers the payload from each respective data packet within the flow specification into the target buffer bypassing the one or more intermediate buffers.

22. (New) The system of claim 21, wherein the network adapter is arranged to determine that a received data packet has good data before transferring the payload of the received data packet to the target buffer.

23. (New) The system of claim 22, wherein the network adapter maintains a record of the parts of the target buffer that have been filled with good data so that the good data is not overwritten.

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24. (New) The system of claim 21, wherein each of the plurality of data packets includes a respective sequence number that indicates a respective offset within the target buffer to store the payload within the data packet associated with the respective sequence number.

25. (New) The system of claim 21, further comprising a processor, wherein the memory further includes software instructions executable by a processor for carrying out the bypassing the one or more intermediate buffers.

26. (New) The system of claim 25, wherein the software instructions are arranged as one or more Medium Access Control drivers.

27. (New) The system of claim 21, wherein each of the plurality of data packets includes control data that indicates whether a given data packet is part of the flow specification.

28. (New) The system of claim 21, wherein the network interface, sends to a data source, a request by the application for the block of data.

29. (New) A network interface card comprising:

a host system interface, wherein the host system interface receives a data request from a host system;

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a network medium interface, wherein the network medium interface (i) forwards the data request to a data source via a network medium coupled to the network medium interface, and (ii) receives a plurality of data packets from the data source via the network medium;

a processor, and

memory for storing software instructions executable by the processor, wherein the software instructions include instructions to (i) read control data included in each of the received data packets, (ii) determine from the control data whether each received data packet is part of a flow specification subject to memory buffer bypass, and (iii) send payload data of each received data packet that is part of the flow specification to a target buffer for a high layer of a multi-protocol stack bypassing a respective buffer for each of one or more lower layers of the multi-protocol stack.

30. (New) The network interface card of claim 29, wherein the software instructions further include one or more instructions for separating each of the plurality of data packets into a respective header fragment and a respective payload fragment, wherein the header fragment includes the control data, and the payload fragment includes the payload data.

31. (New) The network interface card of claim 29, wherein the network interface card is arranged to read a sequence number within each of the plurality of data packets, and send the payload data of the data packet associated with each respective sequence number to a respective offset within the target buffer.

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32. (New) The network interface card of claim 29, wherein the high layer of the multi-protocol stack is an application layer, and the one or more layers of the multi-protocol stack include one or more layers selected from the group consisting of: (i) a physical layer, (ii) a data link layer, (iii) a network layer, and (iv) a transport layer.

33 (New) A method for sending a block of data from a data source, the method comprising:

receiving, from a network interface, a request to send a block of data to the network interface, wherein the request and a protocol stack provide a flow specification that indicates (i) the block of data, and (ii) a target buffer accessible by the network interface;

arranging the block of data into a plurality of data packets, wherein each data packet has a header fragment and a payload fragment, and each header fragment includes control data that indicates (i) the data packet is within the flow specification, and (ii) a payload of each payload fragment is to be sent directly to the target buffer via the network interface bypassing a respective buffer for one or more lower layers of the protocol stack, wherein the target buffer is for a high layer of the protocol stack; and

sending the plurality of data packets to the network interface.

34. (New) The method of claim 33, wherein arranging the block of data into a plurality of data packets further includes placing a respective sequence number into each of the plurality of data packets, wherein each respective sequence number indicates an offset within the target buffer where to store the payload of the payload fragment associated with one of the sequence numbers.

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35. (New) The method of claim 33, wherein arranging the block of data into a plurality of data packets further includes placing a respective packet number into each of the plurality of data packets, wherein the packets numbers are part of the flow specification.

36. (New) The method of claim 35, wherein arranging the block of data into a plurality of data packets further includes arranging at least all of the plurality of data packets except a last data packet to be data packets of the same size.

37. (New) A method for transferring a plurality of data packets received via a network interface, the method comprising:

reading control data in each of the plurality of data packets to determine which of the plurality of data packets is part of a flow specification for a requested block of data;

separating a respective payload from each of the plurality of data packets that is part of the flow specification; and

transferring each respective payload into a high layer buffer for an application operating according to a multi-layer protocol stack, bypassing one or more intermediate buffers of the protocol stack.

38. (New) The method of claim 37, further comprising determining that a data packet received via the network interface has good data prior to transferring the payload separated from the data packet.

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39. (New) The method of claim 38, wherein determining that the data packet has good data includes checking a checksum of the data packet.

40. (New) The method of claim 37, further comprising determining a respective offset of the high layer buffer for each respective payload, wherein transferring each respective payload includes transferring each respective payload to its associated offset of the high layer buffer.

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